## CSI: Titanic

### A Forensic Analysis



#### Tim Foecke

#### National Institute of Standards and Technology and University of Maryland – College Park

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- and many, many others

### It all started with a memo . . .

23:30 MEMORANDUM OF CALL Previous editions usable TO: BAL YOU WERE VISITED BY-YOU WERE CALLED BYmac Cuitto NI. OF (Organization) PLEASE PHONE 530 AUTOVON FTS 301-350-7220 WILL CALL AGAIN IS WAITING TO SEE YOU RETURNED YOUR CALL WISHES AN APPOINTMENT MESSAGE World Was II - Fracture-plates morgan Williams - decessed 4.451 - Work done Jitantie - D. Steel -TIME lav 63-110 NSN 7540 00-684-4018 

## **Historical Background**

## The Olympic-Class Ships



- Olympic (1910), Titanic (1911) and Brittanic (1914)
- 46,000 gross tonnage, 883 feet long, 92 feet wide
- Top design speed = 22.5 knots
- Capacity = roughly 2500 passengers and crew

### **Progression of White Star Liners**

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DIAGRAM SHOWING COMPARATIVE SIZES OF VARIOUS TYPES OF WHITE STAR STEAMERS FROM 1871 TO THE PRESENT TIME



## **Olympic Class**

## Construction









## Riveting

7 - B

- 3,000,000 wrought iron and steel rivets
- Hand and hydraulically driven
- Total weight = 1,550 tons

(courtesy Discovery Communications)













Berg sighted by rescue ship *Mackay Bennett* on April 16th.



## Wreck Site:

Latitude : 41 31' N Longitude : 49 51' W

Depth = 12,600 feet Pressure = 6000 psi



# Metallurgy



### Samples Tested in Canada (1991)

Ken KarisAllen (DREA) Bob Brigham (CANMET)







#### The "Brittle Steel Theory"

- Steel "brittle as glass at ice water temps
- Iceberg "shattered plates"
- Widespread press coverage

### Results from H.P. Leighly (Univ. of Missouri - Rolla)



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### Fractography from Charpy Bars at $0^{\circ}$ C.









### Other Evidence Cited by Matthews